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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,271	10/30/2003	Boon Seong Ang	200300182-1	1610

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EXAMINER	
CHANG, DANIEL D	
ART UNIT	**PAPER NUMBER**
2819	

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/698,271	ANG ET AL.	
	Examiner	Art Unit	
	Daniel D. Chang	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *39-41* is/are allowed.

6)☒ Claim(s) *1,4-11,17,18 and 20-36* is/are rejected.

7)☒ Claim(s) *2,3,12-16,19,37 and 38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/16/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Acknowledgement

Receipt is acknowledged of the Amendment filed May 16, 2005.

Claim Objections

Claim 4 is objected to because of the following informalities: On line 5, the recitation, "an other circuit element" is not clear what it refers to. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-11, 17, 18, and 20-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Duong et al. (US 5,600,264, hereinafter, "Duong").

Regarding claim 1, Duong discloses, in Figs. 2, 4, and 6-9, a reconfigurable device comprising:

tiles (CLB 512a-d) each comprising a circuit (see Fig. 9); and

an interconnect architecture (612, 410, 155) coupled to the circuit of each tile, the interconnect architecture comprising switches (210a-240a, 10a-60a) and registers (210b-240b, 10b-60b) such that in operation at least two of the switches (any two or more switches along the signal path) route a signal from a first tile (first CLB) to a second tile (second CLB) along the interconnect architecture and further such that in operation at least two of the registers

consecutively latch the signal at a time interval of no more than a repeating time period (time period until the next reprogramming of FPGA).

Regarding claim 4, Duong discloses, in Figs. 2, 4, and 6-9, that the circuit of one of the tiles comprises elements selected from a group consisting of a look-up table (612, 614), an arithmetic unit, a multiplier, a reconfigurable interconnect, a memory block, a content addressable memory, a logic element (512), a specialized functional unit, and an other circuit element (see fig. 9).

Regarding claim 5, Duong discloses, in Figs. 2, 4, and 6-9, that the tiles comprise heterogeneous tiles (512 is inherently programmable to be different than other 20).

Regarding claim 6, Duong discloses, in Figs. 2, 4, and 6-9, that the tiles comprise homogeneous tiles (512 is inherently programmable to be identical to other 20).

Regarding claim 7, Duong discloses, in Figs. 2, 4, and 6-9, that the interconnect architecture further comprises data interchanges (155).

Regarding claim 8, Duong discloses, in Figs. 2, 4, and 6-9, that the data interchanges couple the interconnect architecture to the circuits of the tiles (see 510).

Regarding claim 9, Duong discloses, in Figs. 2, 4, and 6-9, that each of the data interchange comprises one of the switches and a plurality of the registers (see 155).

Regarding claim 10, Duong discloses, in Figs. 2, 4, and 6-9, means for programmatic control (configurable memory cell) at each of the data interchanges.

Regarding claim 11, Duong discloses, in Figs. 2, 4, and 6-9, that the means for programmatic control within each of the data interchanges manages operation of the switches and the registers (210a-240a, 10a-60a, 210b-240b, 10b-60b).

Regarding claim 17, Duong discloses, in Figs. 2, 4, and 6-9, that the switch comprises a crossbar switch (155).

Regarding claim 18, Duong discloses, in Figs. 2, 4, and 6-9, that the switch comprises a statically configured switch (210a-240a, 10a-60a).

Regarding claim 20, Duong discloses, in Figs. 2, 4, and 6-9, that the data interchange comprises a plurality of the switches (210a-240a, 10a-60a).

Regarding claim 21, Duong discloses, in Figs. 2, 4, and 6-9, that the data interchange comprises a register file (stored in memory cells 210b-240b, 10b-60b).

Regarding claim 22, Duong discloses, in Figs. 2, 4, and 6-9, that the interconnect architecture further comprises communication links (12, 14, 16, 18 in Fig. 4) coupling the data interchanges.

Regarding claim 23, Duong discloses, in Figs. 2, 4, and 6-9, that a length of each of the communication links allows the signal to traverse the communication link within the repeating time period (until next programming time).

Regarding claim 24, Duong discloses, in Figs. 2, 4, and 6-9, a first communication link (any of 12-18) couples a first data interchange (155 in first 410) to a second data interchange (155 in second 410).

Regarding claim 25, Duong discloses, in Figs. 2, 4, and 6-9, a first communication link (any of 12-18) couples a first data interchange (155 in first 410) to a third data interchange (155 in third 410).

Regarding claim 26, Duong discloses, in Figs. 2, 4, and 6-9, a other communication link (any of 12-18 other than first and second links) couples a first data interchange (155 in first 410) to a second data interchange (155 in other 410).

Regarding claim 27, Duong discloses, in Figs. 2, 4, and 6-9, a other communication link (any of 12-18 other than first and second links) couples a first data interchange (155 in first 410) to a second data interchange (155 in second 410).

Regarding claim 28, Duong discloses, in Figs. 2, 4, and 6-9, a first communication link (any of 12-18) and the other communication links comprise a communication channel (412, 414, 416, 418).

Regarding claim 29, Duong discloses, in Figs. 2, 4, and 6-9, that each tile (512) comprises a mini-tile (612, 614, 616).

Regarding claim 30, Duong discloses, in Figs. 2, 4, and 6-9, that each tile (512) comprises a plurality of mini-tiles (612, 614, 616).

Regarding claim 31, Duong discloses, in Figs. 2, 4, and 6-9, that one of the mini-tile comprises a portion of the circuit (612, 614, 616) of one of the tiles (512).

Regarding claim 32, Duong discloses, in Figs. 2, 4, and 6-9, that each mini-tile couples to the interconnect architecture (via G1-G4, F1-F4).

Regarding claim 33, Duong discloses, in Figs. 2, 4, and 6-9, that the interconnect architecture (612, 410, 155) further comprises data interchanges coupling the interconnect architecture to the mini-tiles (see 512 in Figs. 7, 9)

Regarding claim 34, Duong discloses, in Figs. 2, 4, and 6-9, that each of the data interchanges comprises one of the switches and a plurality of the registers (210a-240a, 10a-60a, 210b-240b, 10b-60b).

Regarding claim 35, Duong discloses, in Figs. 2, 4, and 6-9, that the data interchanges comprises bypasses (see Fig. 4).

Claims 36 is essentially the same in scope as apparatus claims as discussed above and is rejected similarly.

Allowable Subject Matter

Claims 39-41 are allowed.

Claims 2, 3, 12-16, 19, 37, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel D. Chang
Primary Examiner
Art Unit 2819

dc

DANIEL CHANG
PRIMARY EXAMINER